

APPENDIX C

PM2.5 Continuous Monitor Comparability Assessment and Request for Waiver

Introduction

The SCAQMD monitoring program has historically operated PM2.5 continuous monitors primarily to support forecasting and reporting of the Air Quality Index (AQI). These monitors supply data every hour to update the AQI on our website as well as national websites such as AirNow (www.airnow.gov). SCAQMD has been using these monitors since the early part of the last decade as the PM2.5 monitoring program was implemented. Over the last few years, a number of PM2.5 continuous monitors have been approved as Federal Equivalent Methods (FEMs). By utilizing an approved FEM, any subsequent data produced from the method may be eligible for comparison to EPA's health based standard known as the NAAQS. The primary advantage of operating a PM2.5 continuous FEM is that it can support the AQI, while also supplying data that are eligible for comparison to the NAAQS. Thus, a network utilizing PM2.5 continuous FEMs can potentially lower the number of filter-based FRMs operated in the network, which are primarily used for comparison to the NAAQS. These filter-based FRMs are resource intensive in that they require field operations, pre-and post-sampling laboratory analysis, which results in data not being available for approximately 2-4 weeks after sample collection.

On January 1, 2015, EPA required State and Local air monitoring agencies to install PM2.5 monitors at near-road NO2 monitoring stations where peak hourly concentrations were expected to occur within the near-road environment. SCAQMD began monitoring PM2.5 at Long Beach Interstate 710 and Ontario Route 60 Near-Roadway¹ locations where both FRM and continuous FEM PM2.5 are monitored. Because 2016 was the first complete calendar year for PM2.5 collection, the comparison data encompasses a shorter duration than the other sites. It can also be noted that these newest sites have deployed different instruments of the same methodology type and equivalency (FEM) designation by EPA.

SCAQMD has been evaluating PM2.5 continuous FEMs over the past several years. Although PM2.5 continuous FEMs are automated methods, these methods still require careful attention in

¹ Near-Road sites in Long Beach (I-710) and Ontario (Route 60) are presented in comparability data, but with less than three full years of comparison data.

their set-up, operation, and validation of data. Once enough data was collected, SCAQMD began to evaluate the performance of these methods compared to collocated FRM data. The evaluation is explained further below and includes our request regarding the use of the data from these methods.

Request for Exclusion of PM_{2.5} Continuous FEM Data from Comparison to the NAAQS

The network technical requirements for requesting exclusion of data from comparison to the NAAQS are identified in 40 CFR §58.11(e). These requirements refer to the performance criteria described in Table C-4 to subpart C of part 53. To accommodate the differences in how routine monitoring agencies operate their networks, several additional provisions are described in §58.11(e). When a topic is not addressed in §58.11(e), then the test specifications from Table C-4 applies.

As shown in the table below, the slopes of the regression between collocated FRM and FEM measurements at the Central Los Angeles and South Long Beach stations are higher than 1.1, which is outside the test specification indicated in §53 Table C-4 (i.e. slope = 1 ± 0.1). Although the slope criteria was met for Anaheim, Rubidoux (POC 9), Mira Loma, Long Beach Route 710 and Ontario Route 60, the intercept of the regression relationship between FRM and FEM data of ± 2.0 (also indicated in §53 Table C-4) failed for Anaheim (2.77), Rubidoux (2.12), Mira Loma (3.76), Long Beach Route 710 (2.80) and Ontario Route 60 (3.52). Failure of one or both criteria in the EPA equivalency acceptance “box test” was observed at all FEM/FRM paired sites in the SCAQMD jurisdiction for PM_{2.5} monitoring.

Thus, in accordance with the PM NAAQS rule published on January 15th, 2013 (78 FR 3086) and specific to the provisions detailed in §58.10 (b)(13) and §58.11 (e), SCAQMD is requesting that data from the all of the SCAQMD FEM PM_{2.5} monitors be set aside for comparison to the NAAQS. While SCAQMD is working to optimize the monitoring instrumentation to meet all of our monitoring objectives, the performance is not yet at a point where the comparability of the PM_{2.5} continuous FEMs operated in our network compared to collocated FRMs is acceptable. After assessing the comparability of the PM_{2.5} FEMs to the collocated FRMs for our network, the sites listed below do not meet the comparability requirements, including the near-road sites which do not have the full three years, but are no longer classified as SPM. Detailed one-page assessments from which the information described below was obtained are included at the end of this section.

Air Quality Monitoring Network Plan –2018

Table – Request for Exclusion of PM_{2.5} Continuous FEM Data

Site Name	City	Site ID	Cont. POC	Cont. Method Description	PM _{2.5} Cont. Begin Date	PM _{2.5} Cont. End Date	Continuous/ FRM Sampler Pairs Per Season	Slope (m)	Intercept (y)	Meets Bias Requirement	Correlation (r)
<i>Sites with PM_{2.5} continuous FEMs that are collocated with FRMs</i>											
Anaheim	Anaheim	06-059-0007	3	Met-One BAM 1020 w/VSCC *as 88502	01/01/2015	12/31/2017	Winter = 218 Spring = 266 Summer = 260 Fall = 170 Total = 914	1.09	2.77	No	0.93
Central Los Angeles	Los Angeles	06-037-1103	9	Met-One BAM 1020 w/VSCC *as 88502	01/01/2015	12/31/2017	Winter = 219 Spring = 245 Summer = 248 Fall = 237 Total = 949	1.19	1.97	No	0.95
South Long Beach	Long Beach	06-037-4004	3	Met-One BAM 1020 w/VSCC *as 88502	01/03/2015	12/31/2017	Winter = 242 Spring = 252 Summer = 258 Fall = 256 Total = 1008	1.14	1.50	No	0.94
Riverside/ Rubidoux	Rubidoux	06-065-8001	9	Met-One BAM 1020 w/VSCC *as 88502	01/01/2015	12/31/2017	Winter = 241 Spring = 259 Summer = 257 Fall = 261 Total = 1018	1.01	2.12	No	0.92
Mira Loma	Riverside	06-065-8005	3	Met-One BAM 1020 w/VSCC *as 88502	01/01/2015	12/31/2017	Winter = 235 Spring = 226 Summer = 242 Fall = 235 Total = 938	0.98	3.76	No	0.91
Long Beach Route 710 Near Road	Long Beach	06-037-4008	3	Thermo BAM 5014i w/ VSCC *as 88101	01/01/2016	12/31/2017	Winter = 167 Spring = 156 Summer = 180 Fall = 171 Total = 674	.96	2.80	No	0.92
Ontario Route 60 Near Road	Ontario	06-071-0027	3	Thermo BAM 5014i w/ VSCC *as 88101	08/01/2015	12/31/2017	Winter = 180 Spring = 164 Summer = 197 Fall = 230 Total = 771	.90	3.52	No	0.88

Period of Exclusion of Data from the PM2.5 Continuous FEMs

The above table details the period of available data by monitor on which the request to exclude PM2.5 continuous FEM data is based. Per EPA Regional Office approval, these data will be entered into EPA’s AQS database in a manner where the data are only used for the appropriate monitoring objective(s) (i.e., use data for just the AQI). Additionally, SCAQMD will continue to load any new data generated for the next 18 months (intended to represent the period until December 31 of 2019) in the same manner or until such time we request and receive approval from the EPA Regional Office to change the status of these monitors.

PM2.5 Continuous FEM data for Reporting the AQI

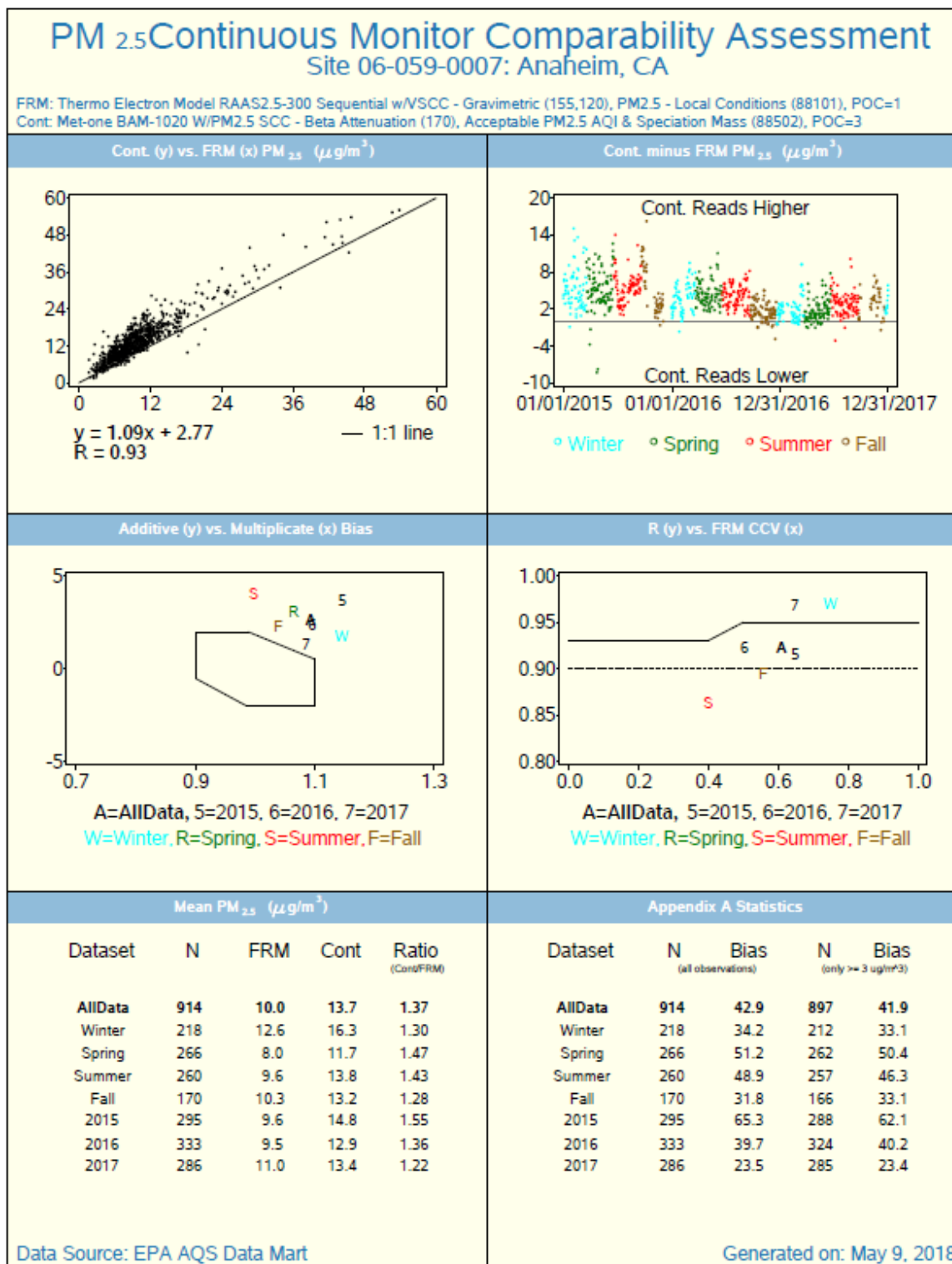
While the analysis supports the request for the monitors above not be used for comparison to the NAAQS, the data are of sufficient comparability to collocated FRMs that they be used for public AQI reporting. Therefore, with EPA Regional Office approval we will report these data on our website and to AirNow (www.airnow.gov). As such, data submitted to EPA’s AQS database will be under “acceptable AQI” reporting (i.e., parameter code 88101) so that data users will know that these data are appropriate for use in AQI calculations, but not for NAAQS comparison.

Assessments

The following one-page assessments are of locations where our agency has collocated PM2.5 FRM and continuous FEM monitors. Each of these assessments is represented in the “**Table – Request for Exclusion of PM2.5 Continuous FEM Data**” above.

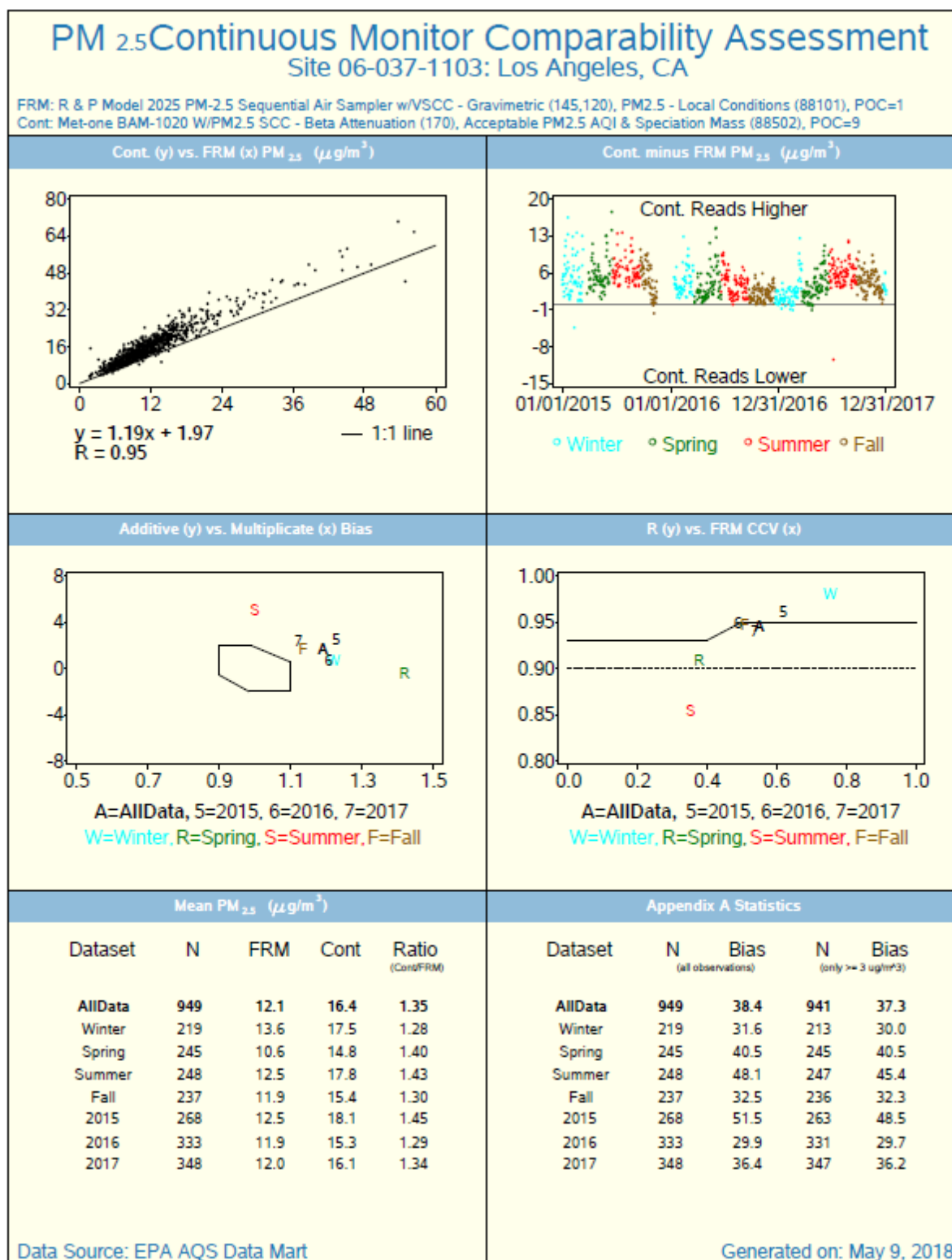
Anaheim

(FRM POC: 1; FEM POC: 3)



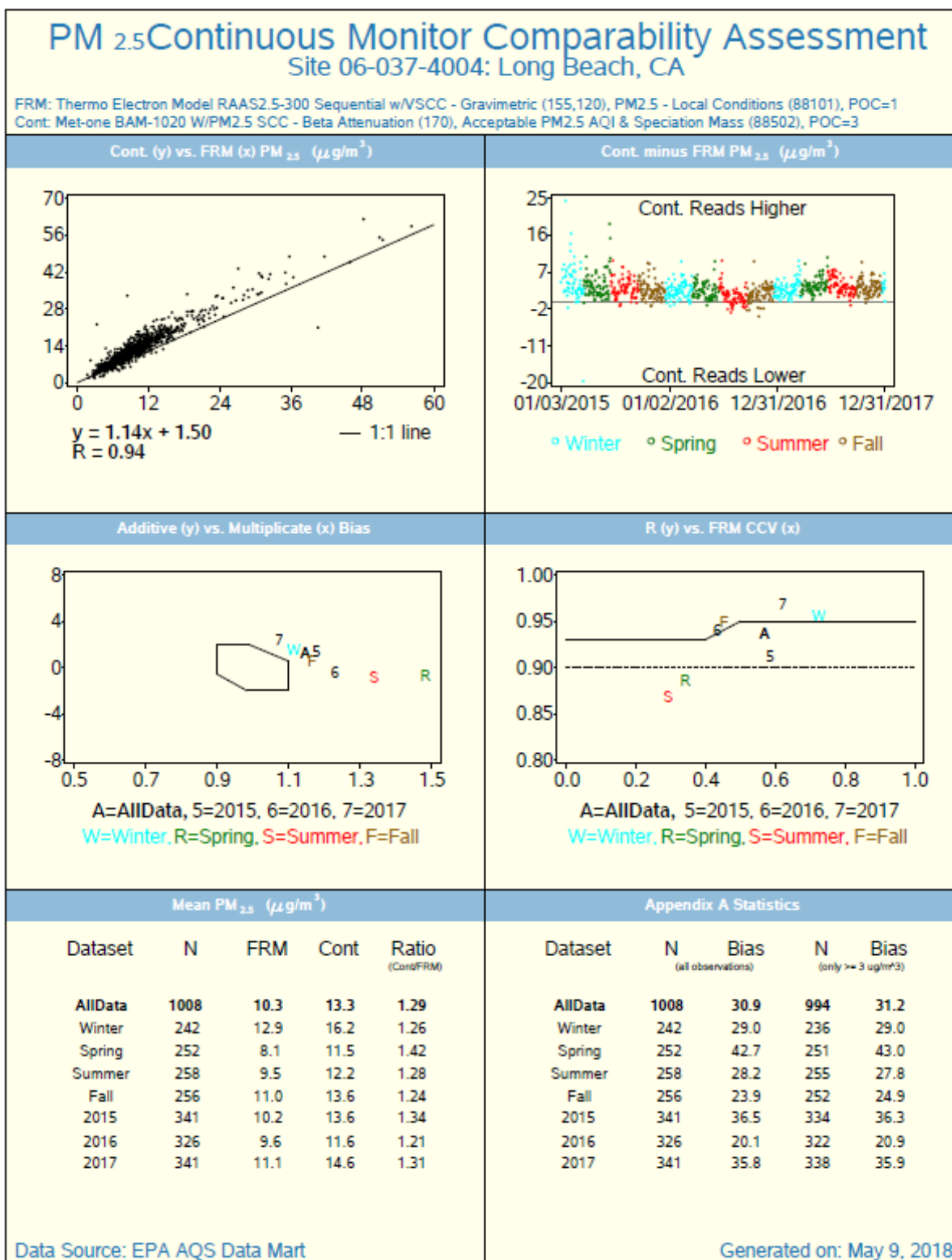
Central Los Angeles

(FRM POC: 1; FEM POC: 9)



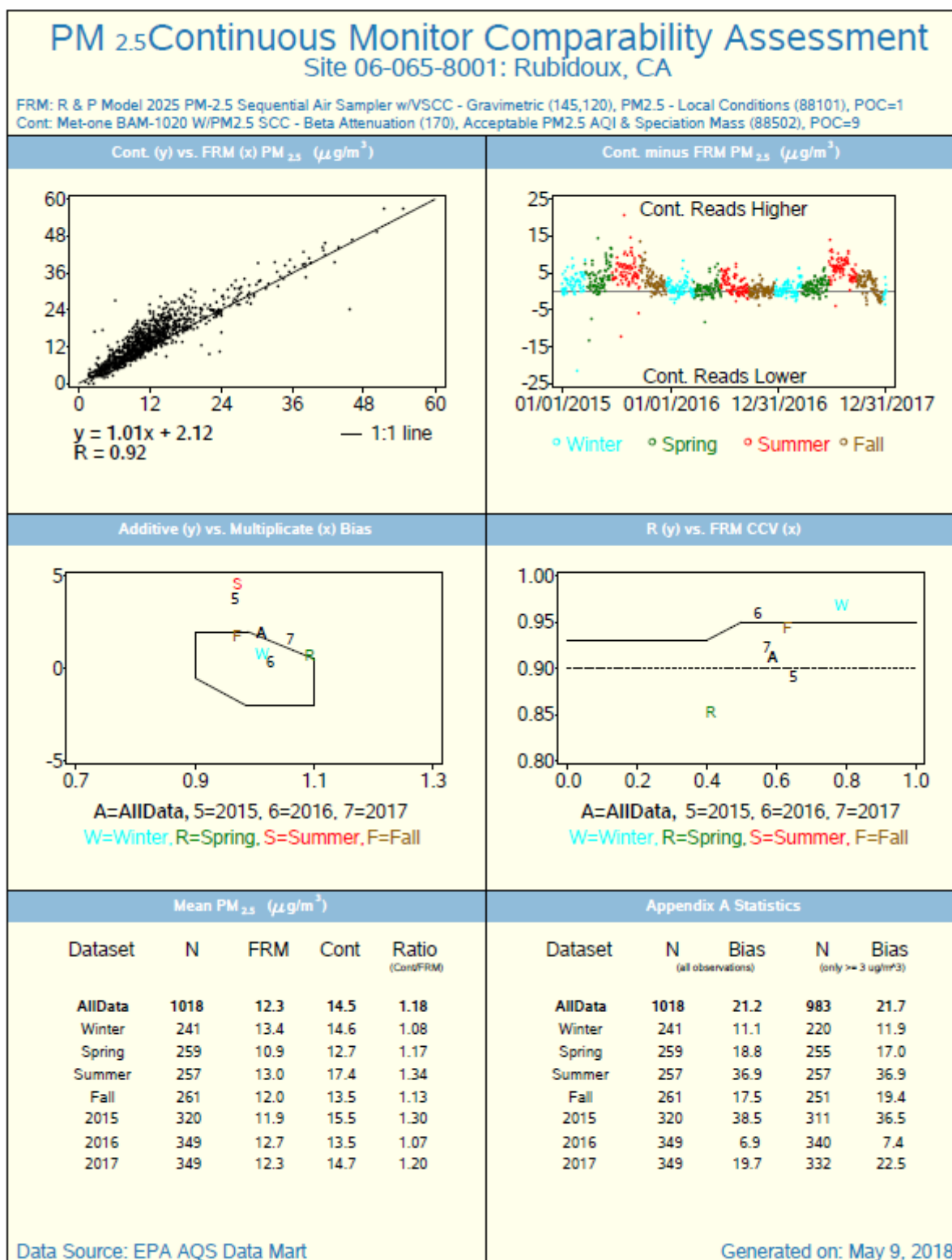
South Long Beach

(FRM POC: 1; FEM POC: 3)



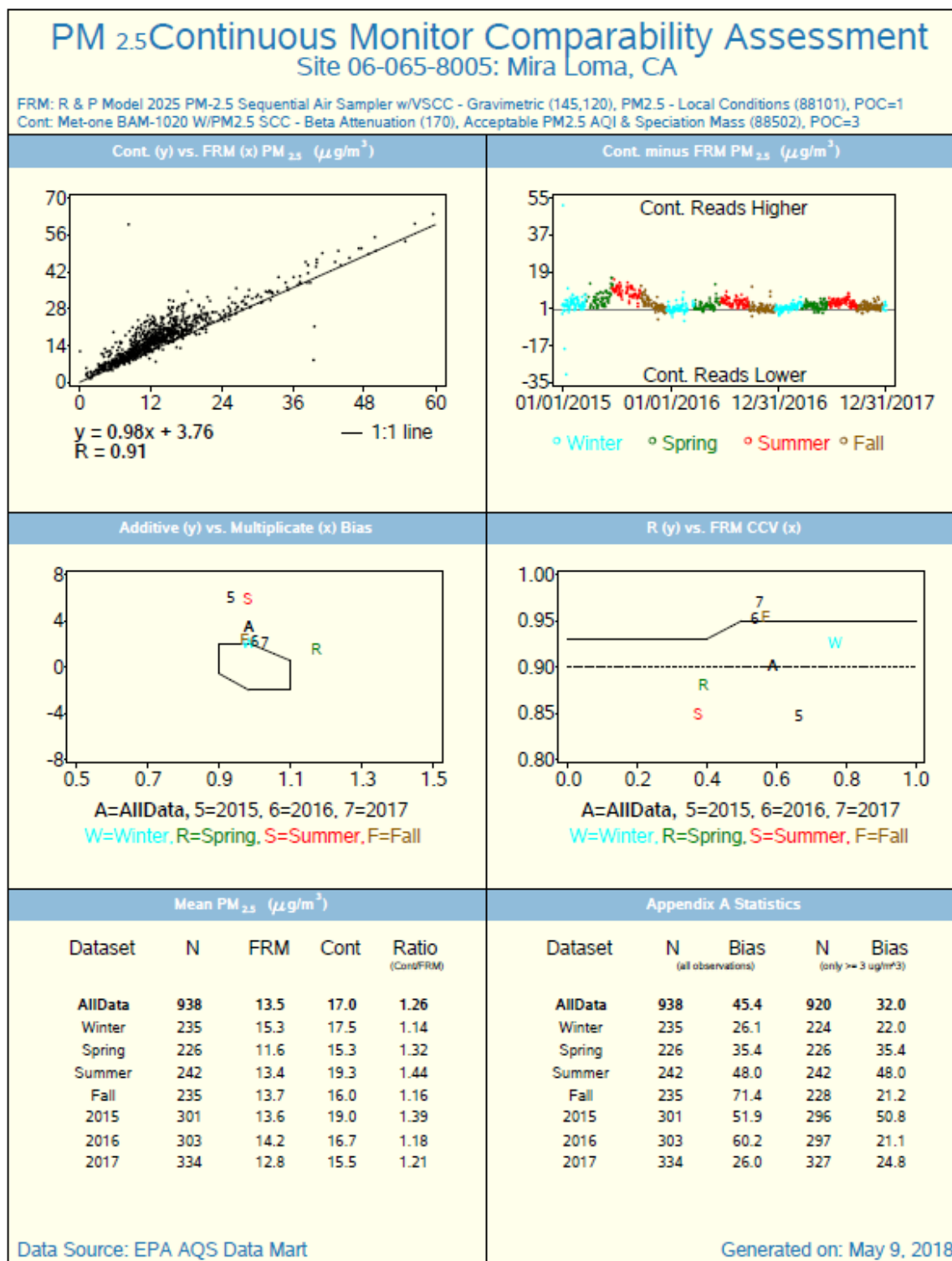
Rubidoux

(FRM POC: 1; FEM POC: 9)



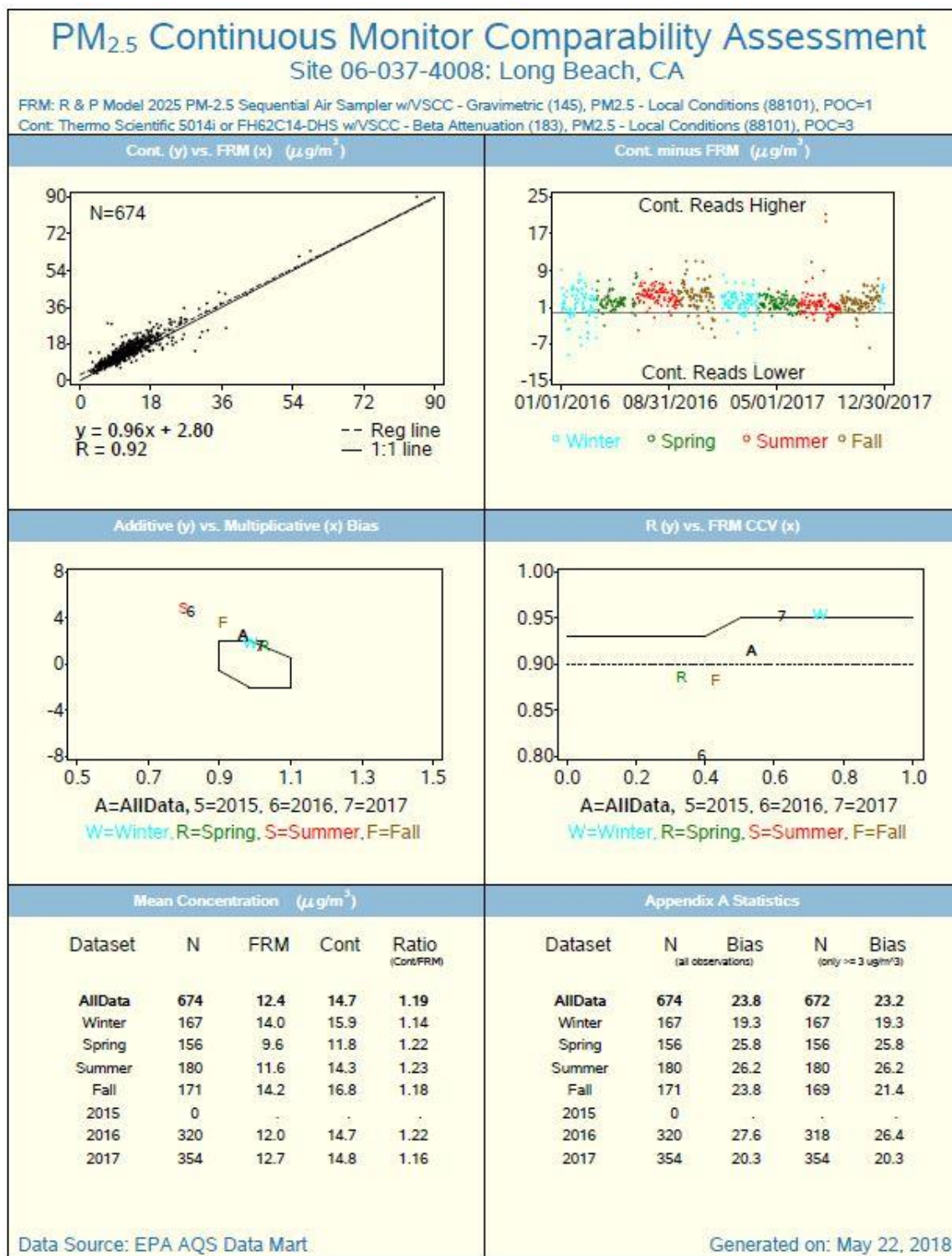
Mira Loma

(FRM POC: 1; FEM POC: 3)



Long Beach Interstate-710

(FRM POC: 1; FEM POC: 3) *as 88101



Ontario Route-60

(FRM POC: 1; FEM POC: 3) *as 88101

